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ABSTRACT

This paper summarizes research relevant to the Austin Independent School District's proposal to move sixth graders from an elementary school (K-6 or K,4-6) to a middle school (6-8) grade grouping. A summary of the evolution of middle-grade education is presented. Three areas affected by grade organization are discussed: academic achievement, nonacademic outcomes (self-concept and anxiety), and homogeneous grade groups. The grade organization studies of various middle grade configurations did not show any consistent effects one way or the other. References to 36 studies are included. (SI)

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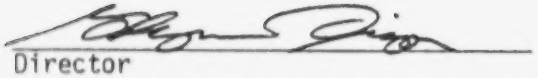
THE EFFECTS OF VARIOUS MIDDLE-GRADE CONFIGURATIONS



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Executive Summary: Effects of Middle Schools

There is no consistent evidence that elementary vs. middle school placement makes any difference in the academic achievement of sixth graders. Most studies have found no difference; the remainder are split between favoring middle schools or elementary schools. Similarly, studies of the effects of sixth-grade placement on nonacademic outcomes do not favor one organization over another. There is some evidence that entering a middle-grade school is related to self-esteem problems in both 12- and 13-year-olds. (In general, the major attribute differentiating elementary from middle schools is the departmentalization of middle schools.)

Most studies comparing middle schools to junior highs in terms of academic achievement have either favored middle schools or found no difference; very few have favored junior highs. Studies that have measured nonacademic outcomes are about evenly split in their findings. However, middle school vs. junior high studies are, as a group, inconclusive because the actual characteristics differentiating the two types of schools (e.g., open classrooms, team teaching, multi-age grouping) vary from study to study, are mixed within studies, or are not specified at all.

In theory, a middle school is not defined only by grade organization. The middle school movement began in the 1960's as 1) a reaction against the perceived failure of junior high schools to respond to the special needs of early adolescents; that is, against the conception of the junior high school as a "junior" high school, and 2) an attempt to create a proving ground for such modern educational techniques as open classrooms, team teaching, use of multimedia techniques, and grouping students by interests and abilities rather than age alone.

In practice, however, many school systems adopted a middle-school grade organization for reasons unrelated to educational philosophy--usually to relieve overcrowding. Several national surveys have concluded that most middle schools differ from junior highs only in grade organization, with most "middle schools" still characterized by traditional teaching methods, academic departmentalization, interschool athletics, and other features supposedly contrary to middle school theory. Consequently, when reviewing studies of the effects of middle schools, one must distinguish between the effects of grade organization per se, and the effects of various facets of the middle-school approach to education.

Use of the middle school grade span has become more common in the last 15 years. The U.S. Department of Education estimated that the number of schools with a 6-8 grade organization increased by 89% between 1970 and 1980, while the number of 7-8 schools rose by 4% and 7-9 schools dropped by 29%.

The tide of educational opinion, at least that of principals, has also moved toward middle schools. A 1981 survey of over 1,400 principals revealed that 54% favored a 6-8 grade arrangement, while 17% preferred 7-9, although only 15% of the survey sample actually used the 6-8 plan. In a 1966 survey, only 18% favored 6-8, while 65% preferred 7-9.

THE EFFECTS OF VARIOUS MIDDLE-GRADE CONFIGURATIONS

This paper will summarize research relevant to the Austin Independent School District's proposal to move sixth graders from an elementary school (K-6 or K,4-6) to a middle school (6-8) grade grouping.

Among the issues which must be considered in deciding between possible middle-grade groupings are:

- the effects on sixth graders of moving from a nondepartmentalized, or "pupil-based" school structure, to a departmentalized, or "subject-based" structure;
- the effects on sixth graders of attending school with seventh and eighth graders, rather than kindergarten-fifth graders.

It should be noted that to most educational theorists the term "middle school" means more than a particular grade organization--it involves an entirely different educational approach than junior high.

This report will briefly describe the evolution of approaches to middle-grade education, then will review studies of the effects of grade organization, as well as the effects of various facets of the middle-school approach, on academic and nonacademic outcomes.

I. The Evolution of Middle-Grade Education

The impetus for the development of junior high schools was provided in 1888 when Harvard President Charles Eliot declared that the then-prevalent 8-4 school organization (eight elementary grades, four secondary grades), with seventh and eighth grade serving as a review of the first six years of elementary school, wasted time that would be better spent in college preparation.

Over the next 30 years, several committees formed by various organizations continued to evaluate American education. A consensus emerged that secondary school be extended downward, with most of the groups recommending a 6-6 plan; some proposed that the last six years be further subdivided into a 3-3 pattern. It was widely thought that the new organization would provide more efficient preparation for college and for life outside the classroom.

During the same period, educators were realizing that children at the beginning of adolescence had special educational, emotional, and social needs; that adolescence occurred earlier than previously thought; and that only a tenth of beginning first graders finished high school, with almost a third dropping out before ninth grade. Junior high schools grew in popularity in response to these realizations.

In a 1970 review, Howard and Stoumbis summarized the theoretical goal framework for junior high schools between 1910 and 1930 as follows:

--to reduce the number of dropouts;
--to offer educational and vocational guidance;
--to implement economy of time;
--to provide exploratory opportunities;
--to recognize individual differences in students;
--to allow for the unique needs and characteristics of early adolescents;
--to bridge the gap between elementary and secondary school;
--to improve discipline; and
--to establish an independent educational unit between elementary and high school.

The theoretical framework notwithstanding, several authorities have suggested that in many cases junior highs were established only to solve overcrowding problems in elementary and high schools (Lentz 1956; Alexander and Kealy 1969), an evaluation that would later be made in connection with middle schools as well.

Later studies concluded that over the years, stress shifted away from vocational training and rounding out the education of potential dropouts; most other junior high functions remained unchanged to the present.

During the 1960's, many educators began to believe that the junior high approach was too much like senior high and did not meet the specific needs of preadolescents and early adolescents. Specifically, they thought junior high was too subject-matter oriented and too traditional in its lecture style of teaching. In addition, most junior highs allowed sophisticated social activities, such as dances, fraternities and sororities, and interschool athletics, which were beyond the maturity level of the age group (Alexander et al. 1968; Dettre 1973; Coffland 1975).

The establishment of middle schools would, it was hoped, do much more than shift sixth grade from elementary school and ninth grade to high school; many educators saw middle school as the place to make sweeping, even revolutionary changes in the education of early adolescents.

Such advocates as Alexander et al. (1968), Moss (1969), Howard and Stoumbis (1970), and Brown (1981) listed attributes of what they believed to be true middle schools: Educational Research Service (1983) summarized these as follows:

--A grade pattern that begins with either the fifth or sixth grade and ends with the eighth grade;
--an educational philosophy that emphasizes the needs and interests of students;
--a willing attitude on the part of the staff toward instructional experimentation, open classrooms, team teaching, utilization of multimedia teaching techniques, and student grouping by talent and interest, rather than age alone;
--an emphasis on individual instruction and guidance for each pupil;

--a focus on educating the whole child, not just the intellect;
--a program to help ease the transition between childhood and adolescence.

More specifically, middle-school proponents have specified a nondepartmental structure, flexible block-of-time scheduling, advisor programs for each student, and intramural rather than interscholastic sports (Schmidt 1982; LaFranchi 1985).

As was the case with junior highs, though, many school systems adopted a middle school grade organization for reasons of expedience--usually to relieve overcrowding--rather than educational philosophy (Alexander 1968; Sinks et al. 1975; Carducci 1979). Authors of reports of national surveys have generally concluded that most middle schools differ from junior highs only in grade organization, with most middle schools still characterized by traditional teaching methods, departmentalization, interschool athletics, and other features supposedly contrary to middle-school theory (Alexander 1968, 1978; Sicks et al. 1975; Brooks 1978).

In 1983, Educational Research Service reviewed studies which surveyed middle schools, either nationally or within a state, to measure the degree to which middle-school philosophies were implemented in schools calling themselves middle schools; of nearly 20 studies cited, almost all found that most middle schools differed from junior highs in name and grade organization only.

But for whatever reason and with whatever real degree of implementation of middle-school theory, it is clear that the middle school grade organization--that is, the school encompassing grades 5-8 or 6-8--became very popular in the 1960's and 1970's.

Valentine et al. (1981) surveyed 1,413 principals and compared their responses to those on a 1966 survey. They found that, although in 1966 65% of principals had favored a 7-9 school for the middle grades, while 18% preferred 6-8, by 1980 54% favored 6-8, with only 17% preferring 7-9. This was true even though only 15% of the schools actually used the preferred 6-8 arrangement.

The U.S. Department of Education estimated that the number of schools with 6-8 organization increased by 89% between 1970 and 1980, while the number of 7-8 schools rose by 4% and 7-9 schools dropped by 29% (cited in LaFranchi 1985).

II. The Effects of Middle Schools

In evaluating the educational effectiveness of middle schools, one must really address two separate issues: the effects of grade organization per se, and the effects of various aspects of the middle school approach. This review will discuss studies bearing on each of these issues, with particular emphasis on the effects of middle school on 6th graders, because the proposed reorganization in Austin would shift them from elementary school to middle school.

A. Grade organization and academic achievement. Research on the direct effects of grade organization on academic achievement generally has found no relationship. One limited study (White 1967) compared schools with different numbers of grades and concluded that seventh graders in schools with one or two grades (e.g., 7, 7-8) did better than in those with three or more grades (e.g., 7-9, K-9, 7-12).

When considering the appropriate placement of sixth graders, the key variable would at first glance seem to be grade organization--that is, is it better for sixth graders to attend school with seventh and eighth graders, or with first through fifth graders? Research in this area has, however, consistently mixed this variable with departmentalization. In other words, sixth graders in 1-6 or K-6 schools are compared with those in 6-8 schools, but the elementary schools are not departmentalized while the middle schools are. Consequently, it is impossible to assign differences in achievement or nonacademic outcomes to either grade organization or to departmentalization, although intuition might lead one to believe departmentalization is more salient in children's day-to-day lives. (Departmentalization is contrary to the original middle-school theory; in reality, however, most middle schools are departmentalized.)

Coffin (1963) studied the effects of departmentalization alone, using four elementary schools, two of which were departmentalized while the other two used self-contained classes. He found no significant differences in sixth-grade performance on a variety of academic achievement measures.

Glissmeyer (1969) and Hosley (1953) compared self-contained vs. departmentalized classes for sixth graders, but their designs were confounded because the self-contained classes were in elementary schools while the departmentalized classes were in middle schools (that is, the grade groupings of the schools were different). Neither Glissmeyer's nor Hosley's study found any differences in academic achievement as a function of classroom type.

Gateman (1974), Shovlin (1967), and Routt (1975), each compared the academic achievement of sixth graders in elementary schools to that of sixth graders in middle schools, and also found no difference in academic achievement. Gateman, however, found that middle-school sixth graders had better self-concepts than elementary-school sixth graders; Shovlin found that this was true for boys only, but that elementary-school girls in sixth grade had better self-concepts than middle-school girls. It is not known if Gateman looked at his results separately for each sex.

Routt (1975), while finding no achievement differences, concluded that sixth graders in elementary school experienced fewer problems than middle-school sixth graders with adjustment or with other students. Clearly, whether elementary (i.e., self-contained) or middle (i.e., departmentalized) classroom organization is best for sixth graders is still an open question. It doesn't seem to make any difference academically, but may affect emotional and social adjustment.

B. Grade organization and nonacademic outcomes. Simmons et al. (1973), investigating the effects of puberty on several dimensions of self concept, found that grade placement had a rather striking effect on 12-year-olds. As the table below shows, self-esteem, self-consciousness, and stability of self-image were all affected by grade placement (i.e., placement in elementary vs. junior high school).

	12-year-olds		
Self-Image Disturbance	elementary	junior high	
percent low self-esteem	22%	41%	p<.01
percent high self-consciousness	27%	43%	p<.05
percent high instability of self-image	30%	53%	p<.01

FIGURE 1: Self-concept of 12-year-olds as a function of school setting.

All the differences remained when ethnicity, social class, and school grades were controlled. Simmons et al. were also able to rule out the explanation that the effect was caused by sixth-grade 12-year-olds being the oldest group in their class, while seventh-grade 12-year-olds are the youngest in theirs; 13-year-olds in seventh grade suffer severe self-concept problems too. They concluded that "transition into junior high seems to represent a significant stress along several dimensions of a child's self-image...." (Simmons et al. 1973). In other words, moving from elementary school to junior high is traumatic at either age 12 or 13. (Note that Simmons et al.'s findings are not consistent with those of Gateman (1974) and Shovlin (1967) cited above.)

The implication of this finding with respect to preferred grade organization is not clear, unless one assumes that it is better to subject children to the stress of adjusting to a middle-level school (either junior high or middle school) at one age than another. It is clear, however, that this issue needs to be considered by policy-makers.

Evans and Powell(1973) measured anxiety experienced by students as a function of the grade organization of their schools, comparing 8-4, 6-3-3, and 5-3-4 organizations. They found no relationship between grade span and anxiety at any grade from 6 through 12.

C. Homogeneity. Some studies have attempted to determine which middle-grade groupings result in the most homogenous groups--that is, at which pairs of grades are students most alike. (The implicit assumption is that it is best to group students with similar characteristics together, an assumption with which some disagree.)

Hillyer (1972) studied differences in the intellectual, emotional, and social maturity levels of students in grades 4-7 who attended either elementary or middle schools. He found distinguishable maturity differences at each level, but because the greatest gap was between fourth and fifth grade, recommended that grades 5, 6, and 7 be grouped together. Incidentally, he also found that the middle-school students scored better on achievement tests, although it is not known how comparable the groups were on demographic and other background variables.

Dacus (1963) also concluded that the most appropriate grouping for both males and females in terms of social and emotional maturity is to put sixth- and seventh-graders together.

A rather larger body of research has compared middle schools to junior high schools. While in studies where elementary schools and middle schools (or junior highs) are compared, the most salient independent variable is the nature of classroom organization (self-contained vs. departmental), in comparisons of middle schools and junior highs the true independent variable(s) are often hard to discern. There are many attributes which differentiate the prototype junior high from the prototype middle school (see, e.g., Howard and Stoumbis 1970; McCarthy 1970); the differences in any particular study are sometimes impossible to determine. In a few studies, however, the specific variables are relatively clear. Following is a summary of these studies.

Smith (1975) examined two middle-level schools in Canton, Ohio. One used a middle-school program characterized by interdisciplinary teaching; grouping of students according to their needs, interests, and capabilities; teachers planning together; and a thematic approach. The other school used a conventional plan characterized by departmentalization, a nonthematic approach, grouping by age, and no team planning.

Smith found that students at the school using the middle school approach made significantly better gains in reading and science; they also gained more in social studies and use of sources, although the differences were not statistically reliable. Self-concept was not affected. Smith's study was the only one found which appeared to attempt to pit the middle-school philosophy in toto against the junior high model.

Odetola et al. (1972) compared junior high and middle school seventh and eighth graders; within the middle school they assigned some students to multidisciplinary teacher teams, while the rest were taught by traditional methods. Odetola et al. apparently did not measure achievement but rather chose to focus on students' feelings of alienation. Results showed that students taught by teacher teams felt a greater sense of powerlessness and less pride in and happiness with school.

Sinclair (1980), on the other hand, reported that eighth graders taught by interdisciplinary teams had a more favorable perception of their school environment and also better academic achievement than those taught in a departmental approach.

The open-classroom issue has been a controversial one and exploring it is beyond the scope of this paper. Some middle school proponents believe open classrooms to be a characteristic differentiating true middle schools from junior highs. Studies of the effects of open classrooms at the middle-grade level are mixed (e.g., Hager 1981; Beasley 1980). Open vs. traditional classroom setting for students of middle school age is still an open question.

Multi-age grouping, another innovation recommended by many middle school advocates, has little positive effect on academic achievement, according to a dissertation study by Marsh (1980).

III. Summary

This is a very muddled research area. Most studies purporting to compare middle schools to junior highs or elementary schools in fact compare among some particular pair or small group of schools, with little or no consistency from study to study in the actual attributes on which the schools differ.

It is clear that, taken as a whole, the research does not permit a conclusion that any particular grade organization is best. As one reviewer (Johnson 1982) said,

> "From what we know now, it is difficult to argue for or against the middle school or junior high school based on grade organization alone. Most experts appear to agree that significant results are not likely to be discovered by simply comparing 5-8, 6-8, 7-8, or 7-9 grade organizations. If there are important differences to be identified, they are most likely to be tied to programmatic differences" (Johnson 1982, p. 107).

For AISD, the bottom line of the middle school issue appears to be as follows: Studies of various middle grade configurations have not shown any consistent effects one way or the other. Given the inconsistent findings, it is likely that any effects of grade organization, or even departmentalization, are dwarfed by the impact of such factors as what is taught, how new information is presented, the climate in the school, and the support students receive after school hours. If these findings make anything clear it is that to ensure a quality education for our students, AISD personnel and the community should focus their attention on what is occuring within a building, rather than on the grade span housed there.

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